

Rise of intraocular pressure after intravitreal injection triamcinolone acetonide

Manish Joshi,MS; Mona Vaish,MS

Correspondence Author

Dr Manish Joshi
Vitreo-Retina & Phaco Surgeon
Jodhpur
Rajasthan

Abstract

Purpose:

To report the occurrences of rapid increases in intraocular (IOP) after single intravitreal Triamcinolone injection.

Design:

Observational case series: review of three cases (eyes) seen by author

Results:

In all three cases, a significant rise in IOP occurred within two weeks of intravitreal triamcinolone injection for retinal disorders. In one patient, a white material was found in the angle on gonioscopy. All three cases required surgical intervention to reduce the IOP.

Conclusions:

Considering the early rapid rise in IOP in these three cases, we suggest that ophthalmologists should closely monitor patients after intravitreal triamcinolone injections for the development of acute glaucoma.

Introduction

Intravitreal triamcinolone acetonide (IVTA) has been widely used in various intraocular inflammatory, exudative,vascular,oedematous conditions. Increasing use of IVTA has caused investigation of rise of intraocular pressure post injection which can be from just immediate two days after injection. Although 4–8 mg doses drawn undiluted from the commercially available vial are commonly used, some ophthalmologists remove the diluent from the medication and concentrate it into a 20–25 mg dose in a small volume.

One of the side effects of intravitreal steroid injection is rise of intraocular pressure.Im I et al [1] reported in their study a significant IOP rise in eyes after

a single intravitreal injection of 4 mg of triamcinolone within 1 month of injection. In this study, the most frequent time point that required IOP treatment was at 2-week post injection, suggesting that early and frequent monitoring of IOP should be considered. Eyes which are at increased risk for post-IVTA elevation of IOP include those with a baseline IOP >16 mm Hg, younger age, repeated IVTA injections, pre-existing glaucoma, and an increased IOP following provocative testing with a 400 µg test dose [rhee et al 2].

Here we are reporting three cases of acute rise of intraocular pressure after intravitreal injection of triamcinolone.

Case 1 & 2

A 24 year old gentleman presented with blurred vision, heaviness in head and eye pain. He was taking treatment of uveitis at an eye care centre. He was given intravitreal injection of Triamcinolone 4 mg there 1 week back. His IOP on presentation to us was 29 mm Hg in right eye and 30 mm Hg in left eye. He was on brimonidine and timolol combination drop.

Anterior segment findings: both eyes mild corneal edema with post sub capsular cataract. Indirect ophthalmoscopy revealed white particulate material in inferior vitreous. Gonioscopy showed open angles with no particles. He was started with dorzolamide eye drops and tab Diamox 250 mg bid in sustained dose formulation for two days. He came back after 1 week and his IOP was 40 mm Hg in both eyes. Injection manitol was given and bimatoprost drops was added in

topical regimen and tablet Diamox was prescribed for 1 week. two weeks later his IOP still in range of 30 to 35 mm Hg in both eyes. On basis of this we decided to go for anti-glaucoma surgery in right eye. Surgery was uneventful and post trabeculectomy IOP in right eye was 14 mm Hg on 1st follow-up. As he was not willing for surgery in left eye he was on medical management for left eye. One month follow-up IOP right eye 16 mm Hg left eye IOP 30 mm Hg.

Visual field left eye glaucomatous field defect, and fundus left eye showing pallor with 0.7 cupping vertically. Right eye 0.4 cupping.

Left eye trabeculectomy done but after significant damage. So it is important to do follow up very regularly after IVTA and take decision in time.

Visual field and fundus photo of patient

Single Field Analysis

Eye: Right

Name: KHUMMA RAM
ID: 47022

DOB: 06-08-1993

Central 24-2 Threshold Test

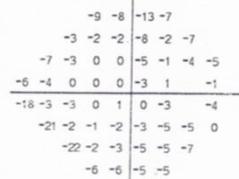
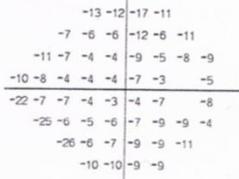
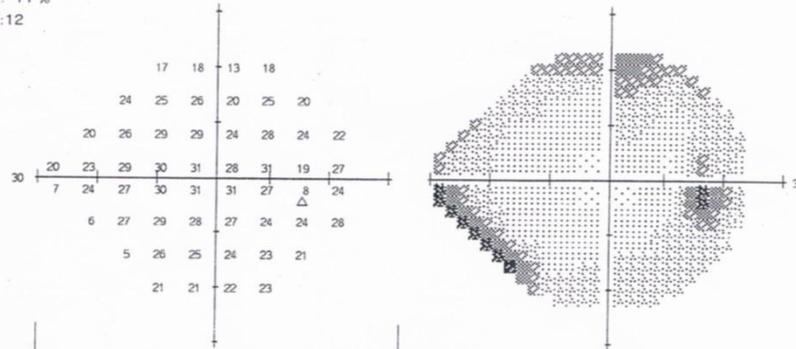
Fixation Monitor: Gaze/Blind Spot
Fixation Target: Central
Fixation Losses: 3/17
False POS Errors: 1 %
False NEG Errors: 11 %
Test Duration: 07:12

Stimulus: III, White
Background: 31.5 ASB
Strategy: SITA-Standard

Pupil Diameter:
Visual Acuity:
RX: +0.00 DS -3.00 DC X 180

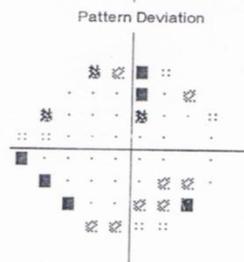
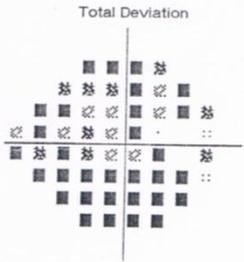
Date: 03-26-2012
Time: 10:05 AM
Age: 18

Fovea: OFF



GHT
Outside normal limits

VFI 89%
MD -7.65 dB P < 0.5%
PSD 4.87 dB P < 0.5%



:: < 5%
▨ < 2%
▩ < 1%
■ < 0.5%

CHAKSU CHIKITSA SEVA SAMITI
KESARWADI CHANDI HALL
JODHPUR-342001
RAJASTHAN
MOHAMMAD IMRAN QAADRI



© 2007 Carl Zeiss Meditec
HFA II 740-18008-4.2.2/4.2.2

Right eye

Single Field Analysis

Eye: Left

Name: KHUMMA RAM
ID: 47022

DOB: 06-08-1993

Central 24-2 Threshold Test

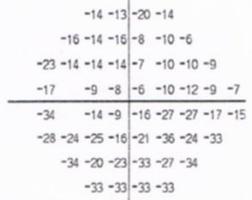
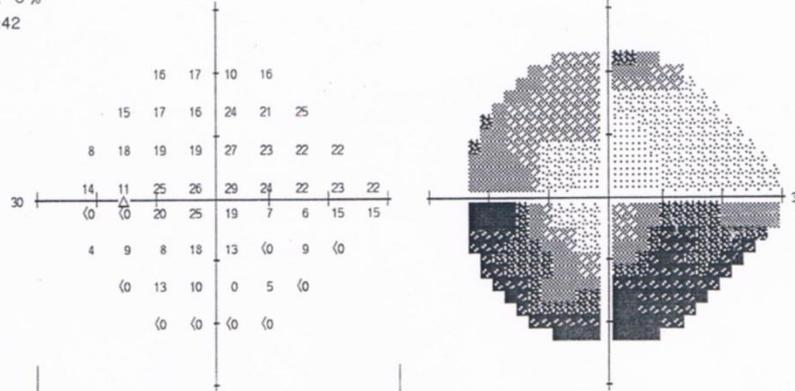
Fixation Monitor: Gaze/Blind Spot
Fixation Target: Central
Fixation Losses: 0/18
False POS Errors: 0 %
False NEG Errors: 0 %
Test Duration: 07:42

Stimulus: Ill, White
Background: 31.5 ASB
Strategy: SITA-Standard

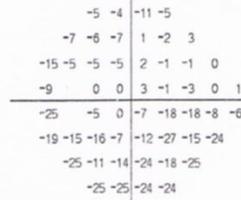
Pupil Diameter:
Visual Acuity:
RX: +0.00 DS -2.50 DC X 50

Date: 03-26-2012
Time: 10:25 AM
Age: 18

Fovea: OFF



Total Deviation



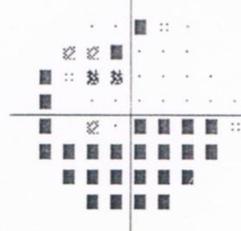
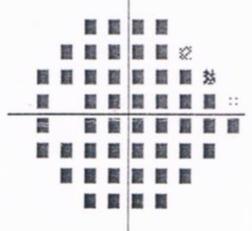
Pattern Deviation

GHT
Outside normal limits

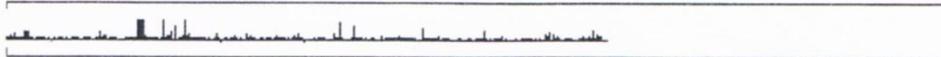
VFI 61%

MD -18.97 dB P < 0.5%

PSD 10.11 dB P < 0.5%

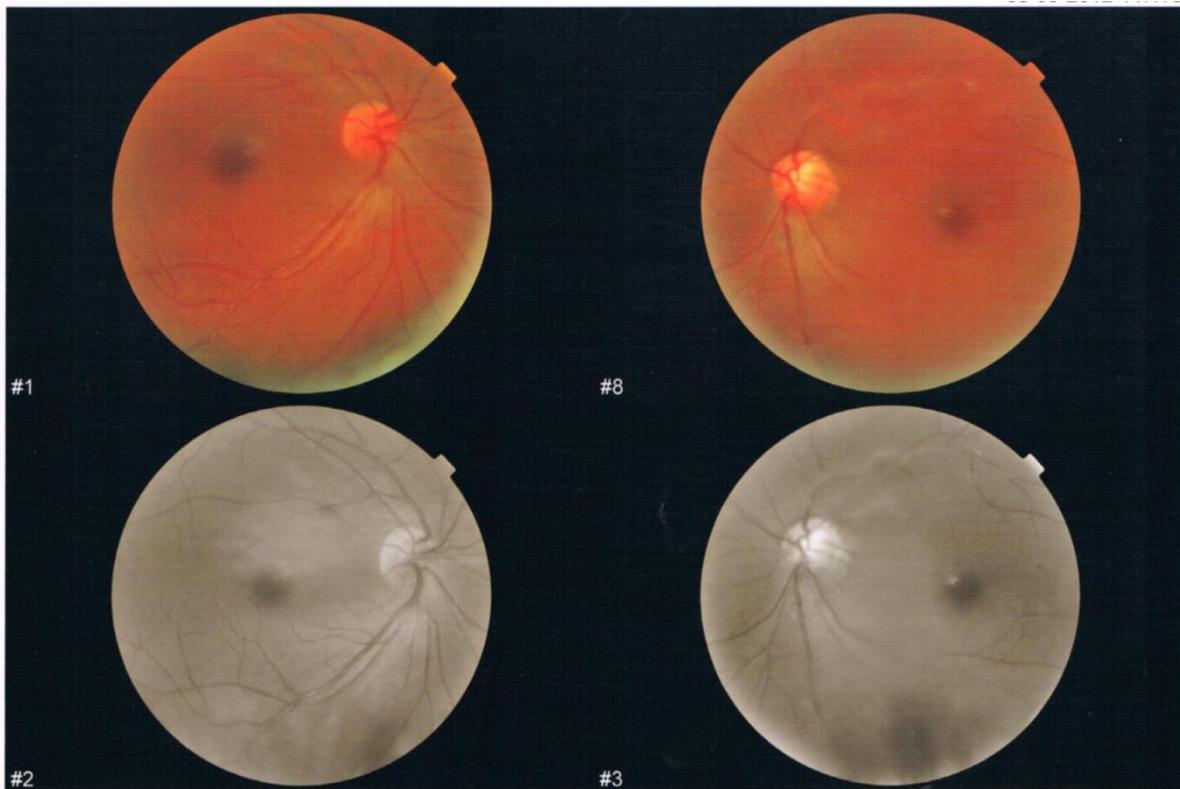


CHAKSU CHIKITSA SEVA SAMITI
KESARWADI CHANDI HALL
JODHPUR-342001
RAJASTHAN
MOHAMMAD IMRAN QAADRI



© 2007 Carl Zeiss Meditec
HFA II 740-18008-4.2.2/4.2.2

Left Eye



This image is printed by IMAGEnet for Windows™.

Case 3:

A 47 year old male presented with pain left eye with redness and blurred vision.

Known case of diabetic retinopathy, with history of left eye intravitreal injection triamcinolone 4 mg given 15 days back. Left eye anterior segment findings showing corneal edema, IOP 41 mm, pupil dilated, immature cataract, and gonioscopy showing particles in angles.

Fundus examination left eye showing CSME and triamcinolone particles.

Patient was prescribed brimonidine and timolol combination drops, dorzolamide eye drops Hg and Travoprost eye drops. IOP was down to 29 mm Hg and not becoming lower for almost one month. Optic disc getting compromised with 0.7 CD ratio. Other eye was having only 3 meter finger counting vision. We considered left eye anti glaucoma surgery. Left eye trabeculectomy was done. Post trabeculectomy IOP 10 mm Hg, maintained for long time in normal range.



Observing the above mentioned cases, young patients are more prone for high IOP after intravitreal injection triamcinolone. Surgical intervention should be considered early if IOP is not controlled with conservative management and optic disc is getting compromised. As truly said more eyes are lost due to avoidance of surgery rather than because of surgery in glaucoma.

References:

- 1) [J Glaucoma](#). 2008 Mar; 17(2):128-32. A prospective study of early intraocular pressure changes after a single intravitreal triamcinolone injection.
- 2) Rhee D J, Peck R E, Belmont J. *et al* Intraocular pressure alterations following intravitreal triamcinolone acetonide. *Br J Ophthalmol* 2006.

